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Institutional strength, polluting sectors, and non-environmentalist tendency: A neo-institutional theory perspective

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Abstract

Purpose: This study aims to redirect attention from traditional analyses of environmental performance towards examining firms that exhibit "zero" environmental performance—those that entirely neglect ecological practices. Specifically, it investigates the institutional drivers (i.e., coercive and mimetic pressure) behind the worldwide tendency of firms to adopt non-environmentalist behaviors. By highlighting the practices of these firms, the research seeks to alert regulators and practitioners to a critical yet underexamined issue, particularly in the context of escalating ecological challenges and the pressing need to address climate change.

Methodology: Our approach is grounded in neo-institutional theory, emphasizing the role of institutional pressures in shaping organizational behavior towards environmentalism. We analyze an extensive international dataset comprising 59,172 firm-year observations collected from 2002 to 2019 by employing a fixed-effects logistic regression model. Our methodology involves examining the impact of coercive pressure, represented by the quality of public governance, and mimetic pressure, indicated by affiliation with polluting industries, on firms' environmental practices or the lack thereof.

Findings: The analysis reveals that public governance quality (a form of coercive pressures) significantly deters firms from neglecting environmental practices, particularly in areas of eco-innovation, emissions, and resource consumption reduction. Interestingly, while affiliation with polluting industries (a form of mimetic pressure) generally discourages non-environmental behavior, it paradoxically encourages non-eco-innovative engagement. Over the study period, we observe a gradual decline in the tendency of firms to ignore environmentalism and its three key components, suggesting an increasing institutional influence on corporate environmental practices. However, further analyses also indicate that public regulations are not as impactful in recent periods as they used to be in deterring firms from neglecting environmental practices.

Practical implications: Given the global nature of climate change and ecological concerns, preventing environmental exploitation should be a collective goal for all nations via strengthening public governance quality. Additionally, while polluting industries tend to adopt eco-friendly practices due to institutional pressures, their resistance to eco-innovation raises questions about long-term ecological solutions.

Originality/Value: This research contributes to the existing literature by focusing on a largely unexamined segment of firms—those with "zero" environmental performance. By employing a novel approach that scrutinizes the effects of institutional pressures on the neglect of environmental practices, our study offers fresh insights into how coercive and mimetic forces can either hinder or facilitate non-environmentalist behavior in the business sector.

Keywords: Non-environmentalists; environmental performance; institutional theory; polluting industry; public governance.

1. Introduction

Corporate environmental responsibility has evolved into a critical component of a company's recognition of its societal accountability (Aldieri *et al.*, 2023; Breuer *et al.*, 2023; Callaghan and Mitchell, 2023; Mu *et al.*, 2023). It plays a pivotal role in how businesses address challenges like resource scarcity and global climate change while also aligning their actions with societal values (Barakat *et al.*, 2016; Le *et al.*, 2021; Zhou and Liu, 2023). This alignment has led to increased institutional pressures for companies to engage in more effective environmental initiatives (Aerts and Cormier, 2009; Gallego-Álvarez and Ortas, 2017; Bothello and Salles-Djelic, 2018; Hanif *et al.*, 2023). Consequently, researchers have been motivated to investigate the factors that either encourage or hinder corporate involvement in environmental activities (Fifka, 2013; Brooks and Oikonomou, 2017; Chen *et al.*, 2018; Gerged, 2020; Gerged *et al.*, 2021b; Gerged *et al.*, 2023; Simmou *et al.*, 2023; Bilal *et al.*, 2024; Andreoli *et al.*, 2024).

Nonetheless, the existing body of research has predominantly focused on micro-level determinants of firms' environmental performance, particularly within single-country contexts (Dalla Via and Perego, 2018; Kumar and Shetty, 2018; Boura *et al.*, 2020; Jin *et al.*, 2023). However, companies' environmental performance not only varies over time but also significantly differs from one country to another. Various macro-level factors come into play, including environmental regulations (Arocena and Price, 2002; Crossland and Hambrick, 2011; Ioannou and Serafeim, 2012; Talbot and Boiral, 2015; Baldini *et al.*, 2018; Bo *et al.*, 2019; Hao *et al.*, 2023; Shin *et al.*, 2023). For example, the UK government introduced the Climate Change Act of 2008, mandating significant reductions in carbon emissions for corporations (Baboukardos, 2017). In the United States, the

Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 had a substantial impact on promoting environmental responsibility and transparency among firms (Arikan *et al.*, 2017; Dalla *et al.*, 2018). China's State Environmental Protection Administration (SEPA) also implemented strict regulations to oversee listed firms' environmental performance in 2008 (Meng *et al.*, 2014). However, the effectiveness of these regulatory pressures in ensuring firms adhere to their environmental responsibilities remains a subject of inquiry.

In response to these questions, Gerged, *et al.* (2023) explored the role of institutional forces in promoting environmental transparency among firms in Gulf Cooperation Council (GCC) countries, finding that higher government quality increased environmental responsibility among GCC firms. Other studies (e.g., Ioannou and Serafeim, 2012; Baldini *et al.*, 2018; Eiadat and Fernández Castro, 2018; Doh *et al.*, 2022) examined the factors influencing firms' environmental tendencies on an international scale, identifying macro-level factors such as legal traditions, culture, and religion as key drivers of these tendencies in both developed and emerging economies.

Despite increasing environmental challenges, little is known about how institutional pressures—such as regulatory (coercive), mimetic, and normative forces—influence firms with non-environmentalist orientations on a global scale (Haslam, 2021). Non-environmentalist tendencies refer to the behavior of firms that avoid engaging in environmentally responsible actions, such as reducing emissions, conserving resources, or investing in eco-innovation. These behaviors are often driven by sector-specific norms or financial constraints, causing firms to adopt a passive stance toward environmental issues (Berrone, Fosfuri, Gelabert, & Gomez-Mejia, 2013; Testa, Boiral, & Iraldo, 2015).

In contrast, environmentalist tendencies are characterized by proactive efforts to minimize ecological impact through practices like emissions reduction, resource efficiency, and eco-innovation (Hart, 1995; Porter & van der Linde, 1995).

This study focuses on the institutional forces shaping these opposing behaviors, particularly the role of coercive pressures from public governance and mimetic pressures prevalent in polluting industries (DiMaggio & Powell, 1983; Hoffman, 1999). By providing international evidence on the institutional determinants of non-environmentalist tendencies, this research aims to shed light on this critical issue amid growing environmental concerns and the intensifying effects of climate change.

Applying neo-institutional theory and focusing on a diverse sample of countries with varying legal, cultural, and religious characteristics, the study examines the role of country-level governance (regulatory pressures) and the affiliation of firms with polluting industries (imitative forces) as factors influencing non-environmentalist tendencies.

By analyzing a dataset comprising 59,172 firm-year observations from 7,702 unique firms from 2002 to 2019, the study employs a fixed-effects logistic regression model. It complements this technique with Entropy Balancing and Propensity Score Matching (PSM) methods to address potential endogeneity concerns. The study's empirical findings can be summarized in three main points: First, it reveals that higher national governance quality reduces non-environmentalist tendencies, with the most pronounced impact seen in non-eco-innovative engagement, followed by non-emissions and non-resource use engagements. Second, the study finds that polluting industry affiliation (as a proxy for imitative forces) appears to mitigate non-environmentalist tendencies, non-emissions, and non-resource use engagements, but has an opposite effect on non-eco-innovative

engagement. Third, as a response to increasing regulatory and public pressures on firms, the study observes a declining trend in non-environmentalist tendencies and their associated dimensions over time.

This study makes substantial contributions to both theoretical frameworks and practical applications in environmental responsibility within firms by examining the macro-level determinants that shape corporate behavior. Unlike much existing research that predominantly focuses on factors encouraging pro-environmental behaviors, this investigation explores the underlying causes of non-environmentalist tendencies on a global scale, thereby addressing a significant gap in the literature. Utilizing a neo-institutional framework, the research provides a detailed analysis of how national governance mechanisms—through coercive pressures—and imitative pressures from peers within polluting sectors, contribute to these non-environmental behaviors. This comprehensive approach not only advances theoretical understanding but also offers practical insights. Critically, the study explores the dynamic nature of these non-environmentalist tendencies over time, assessing whether they diminish due to escalating pressures from stakeholders. This longitudinal perspective is particularly innovative, as it directly ties theoretical insights to practical outcomes, delineating clear pathways for stakeholders to effectively sway corporate behaviors towards greater sustainability.

Moreover, by broadening its scope to include the periods before and after the enactment of the Paris Agreement (COP21), the research sheds light on the profound impacts of major global policy shifts on corporate environmental strategies. This temporal comparison between pre- and post-COP21 environments, alongside the contrasts between developed and developing nations, deepens the understanding of how varied

institutional contexts influence corporate practices. In essence, this study does more than merely contribute to theoretical discourse; it provides tangible strategies that stakeholders can employ to navigate and promote sustainable practices within firms. By outlining how different pressures and policies can alter corporate behavior, it equips policymakers, industry leaders, and environmental advocates with the knowledge to drive meaningful change, making it an invaluable resource for guiding firms toward more responsible environmental stewardship. These insights not only foster a deeper comprehension of the theoretical underpinnings of environmental non-compliance but also facilitate a practical approach to mitigating such behaviors through informed stakeholder engagement and policy development.

The remainder of the paper is structured as follows: Section 2 presents the theoretical background and develops the hypotheses. Section 3 explains the research design. Section 4 presents the empirical findings. Section 5 provides the discussion and conclusion followed by Section 6 suggesting implications and setting limitations.

2. Theory and hypotheses

2.1. Neo-Institutional Theory and Non-Environmentalist Tendencies

Numerous studies have applied neo-institutional theory to examine corporate environmental accountability, highlighting its effectiveness in explaining organizational behavior within environmental contexts (Lewis *et al.*, 2014; Baldini *et al.*, 2018; Gerged *et al.*, 2021a; Peng *et al.*, 2023; Gerged *et al.*, 2024; Marie *et al.*, 2024). According to DiMaggio and Powell (1983), and supported by subsequent studies (Meyer and Rowan, 1977; Suchman, 1995; Deegan and Shelly, 2014), firms conform to the institutionalized structures, norms, and beliefs of their fields, which promote similar environmental

practices through isomorphic pressures. These pressures are categorized into coercive, mimetic, and normative, with each type affecting firms in different ways (DiMaggio and Powell, 1983). Coercive isomorphism, enforced by regulatory entities, demands compliance with certain practices (Campbell, 2007), while mimetic isomorphism leads firms to imitate successful peers, particularly within polluting sectors (Zampone *et al.*, 2023).

Earlier applications of this theory have expanded our understanding of environmental practices' macro-level determinants across various national contexts (Jackson and Apostolakou, 2010; Ioannou and Serafeim, 2012; Jaraitė *et al.*, 2022; Uyar *et al.*, 2024). These findings underscore the significant role of national governance and sector-specific dynamics in influencing firms' environmental and non-environmental actions (Beltratti and Stulz, 2012; Zhang *et al.*, 2019; Gerged and Almontaser, 2021). This study builds on this foundation to systematically explore the influence of these factors on non-environmentalist tendencies.

Neo-institutional theory suggests that organizations adapt to external institutional pressures to gain legitimacy. These pressures—coercive, mimetic, and normative—shape organizational behavior in distinct ways (DiMaggio and Powell, 1983; Suchman, 1995). Coercive pressures, often driven by regulatory mandates, typically compel firms toward environmental compliance. However, weak governance structures in some contexts may undermine enforcement, allowing firms to bypass environmental regulations (Gerged et al., 2021a).

Mimetic pressures also play a crucial role, particularly in polluting industries, where firms are influenced by the environmentally responsible practices of their peers. For

example, a firm's adoption of water recycling initiatives may be directly inspired by similar actions taken by competitors, illustrating how mimetic behavior fosters pro-environmental practices (Chen and Huang, 2024). Such peer-driven emulation underscores the importance of industry norms in shaping corporate environmental behavior, especially in sectors with heightened scrutiny.

The interplay of these institutional forces—coercive, mimetic, and normative—guides firms' strategic decisions to adopt or eschew environmental practices, with industry norms often prevailing when regulatory oversight is weak. However, the dynamics differ across institutional environments. For instance, Wang et al. (2025) highlight that in developed markets, multiple institutional actors (e.g., governments, civil society, media) collaborate to hold firms accountable for environmental and social issues. In contrast, in developing markets, governments tend to dominate as the primary institutional actors, often with weaker enforcement mechanisms (Gerged et al., 2021a). This disparity may explain the weaker evidence of environmental compliance in developing nations, where public institutions and complementary mechanisms are underdeveloped.

Moreover, the polluting sector's greater visibility and exposure to legitimacy and regulatory risks may account for the observed negative association between such sectors and environmental practices (Uyar et al., 2024). Firms in these industries face heightened scrutiny from stakeholders, potentially incentivizing them to adopt practices that mitigate reputational risks despite weak institutional pressures. Together, these insights emphasize the complex, context-dependent nature of institutional forces in shaping firms' environmental strategies.

2.2. Public Governance Quality and Non-Environmentalist Tendencies

Blanc *et al.* (2017) argued that the quality of public governance refers to the processes and structures shaping the context for resource utilization within a specific country. Prior research has demonstrated that national governance significantly influences corporate environmental practices (Baldini *et al.*, 2018; Gerged *et al.*, 2023). The World Governance Index (WGI), which assesses public governance quality across six dimensions—voice and accountability, government effectiveness, political stability, rule of law, regulatory quality, and control of corruption—has been widely employed by researchers to operationalize the concept of public governance quality (Kaufmann *et al.*, 2009). Based on extensive data from various sources, the WGI reflects international perceptions of governance (Kaufmann *et al.*, 2011). Although the quality of public governance has been linked to environmental transparency and accountability (Rahi *et al.*, 2023), the relationship between public governance indicators and environmental practices can be complex and varied (Baldini *et al.*, 2018). For example, Rahi *et al.* (2023) found a heterogeneous impact of public governance as a proxy for institutional quality on corporate pro-sustainable performance in the context of European countries.

According to neo-institutional theory, public governance structures encompass both formal constraints, such as legal frameworks, and informal regulations, including ethical codes and unwritten social norms (Kaufmann et al., 2011; Gerged et al., 2024). These structures can shape corporate behavior by creating an environment conducive to the adoption of environmental practices, often driven by coercive pressures (Elamer et al., 2020). Empirical evidence supports this relationship: Barakat and Hussainey (2013) demonstrated that firms in European Union countries with higher-quality public

governance are more likely to engage in corporate responsibility activities. Similarly, Gerged et al. (2023) observed that improved public governance quality in the GCC region has spurred greater environmental commitment among firms. Extending this perspective, Gerged et al. (2024) highlighted how enhanced national governance acts as a coercive isomorphic force, driving corporate responsibility to mitigate irresponsible practices in Sub-Saharan African countries. This argument is further corroborated by Sharma et al. (2024), who emphasized the role of national governance quality in motivating multinational firms in India to improve sustainability compliance and transparency. Building on these insights, this study posits that high-quality public governance, as a proxy for regulatory forces, plays a critical role in curbing firms' environmentally irresponsible tendencies. This leads to the formulation of the following hypothesis:

> **HYPOTHESIS 1**: Coercive forces (i.e., public governance) are negatively associated with non-environmentalist tendencies.

2.3. Polluting Sector Affiliation and Non-Environmentalist Tendencies

Previous studies have extensively examined the impact of polluting sector affiliation—commonly referred to as environmental sensitivity—on environmental practices in both developed and developing economies (Haniffa and Cooke, 2002; Mahenc, 2008; Ali and Rizwan, 2013; Channa et al., 2021; Zhang et al., 2021; Wu and Lin, 2022; Uyar et al., 2023). The environmentalism literature highlights notable variations in environmental practices across sectors, with firms in certain industries displaying distinct environmental behaviors (Marston, 2003; Oyelere et al., 2003).

For instance, Channa et al. (2021) argue that firms in controversial sectors—those affiliated with higher pollution—strengthen the link between employees' perceptions of corporate social responsibility and environmental performance. Similarly, Wu and Lin

(2022) provide evidence that environmental sensitivity significantly shapes firms' environmental outcomes. Gerged and Almontaser (2021) further emphasize that energy firms with high environmental sensitivity are particularly motivated to adopt pro-sustainable practices.

Theoretical insights suggest that firms across polluting and non-polluting sectors often emulate the environmental practices of leading firms within their industries (Marston, 2003; Zhou and Zhou, 2023). Galeazzo et al. (2024) illustrate this phenomenon by showing that high-polluting sectors among the "global 100 most sustainable corporations" achieve a greater alignment with Sustainable Development Goals (SDGs). This suggests that institutional forces encourage polluting firms to mimic best practices to gain societal acceptance.

This alignment reflects the concept of *mimetic isomorphism*, where firms adopt practices seen as legitimate or successful in their field to conform to institutional norms (Amran and Haniffa, 2011; Bansal and Pendyala, 2023; Gerged et al., 2023). Therefore, it is expected that firms in environmentally sensitive sectors will increasingly adopt leading firms' environmental practices to address societal and institutional pressures.

Collectively, mimetic forces, particularly in firms affiliated with polluting sectors, can play a significant role in shaping environmental practices. Firms within these sectors often imitate the environmental behaviors of leading peers to conform to sector norms, particularly in areas like emissions reduction and resource use. This leads to a negative relationship between polluting sector affiliation and non-environmentalist tendencies, as firms aim to avoid reputational and regulatory risks. Hence, the second hypothesis is developed as follows:

HYPOTHESIS 2: Mimetic forces (i.e., polluting sector affiliation) are negatively associated with non-environmentalist tendencies.

2.4. Trends in Non-Environmentalism Over Time

Previous research indicates an upward trend in firms' environmentalist tendencies over time (Gana and Dakhlaoui, 2011; Habbash, 2016; Gerged *et al.*, 2018). This trend is attributed to various factors, including increased awareness of environmental responsibility, stakeholder pressure, environmental regulations, and the pursuit of foreign investments. The influence of institutional pressures, such as coercive and mimetic forces, is also significant in shaping firms' environmental practices. For example, Broadstock *et al.* (2018) observed a decrease in GHG emissions among UK firms following the enactment of the Carbon Emissions Disclosure Act of 2013. Similarly, Gerged *et al.* (2023) identified regulative pressures as a key factor in enhancing environmental practices in firms within the GCC region. Matisoff *et al.* (2013) noted that mimetic isomorphism contributed to the growing environmental tendencies of firms in energy-intensive industries. Building on these studies and neo-institutional theory, this study hypothesizes a decline in firms' non-environmentalist tendencies over time, which will be examined through regression analysis.

HYPOTHESIS 3: There is a decreasing trend in non-environmentalist tendencies over time.

Figure 1 shows hypothesized relationships.

---Insert Figure 1 here---

3. Research methodology

3.1. Variables

We measure non-environmentalist tendency with a composite indicator as well as its three components (Kuzey *et al.*, 2022). Specifically, Non_ENV is the composite indicator showing the generic non-environmentalist tendency, Non_RES, Non_EMIS, and Non_EINN show a non-engagement tendency for resource use, emissions reduction, and eco-innovation metrics under Non_ENV[1] , respectively. The data for the Non_ENV, Non_RES, Non_EMIS, and Non_EINN were collected from the Thomson Reuters Eikon database. Along with the composite non-environmentalist tendency indicator (Non_ENV), we have chosen its three sub-indicators namely Non_RES, Non_EMIS, and Non_EINN to explore if institutional factors might exert differing enforcement on them. Investigation drawing on these three indicators will highlight if coercive and mimetic forces deter firms from not undertaking resource consumption measures, or not reducing carbon emissions, or not engaging with eco-innovation more profoundly. This investigation is also important as all environmental performance dimensions may not equivalently be considered essential by firms. For example, eco-innovation appears to be more discretionary compared to resource consumption and carbon emissions, hence firms might differentiate in prioritizing them. Lastly, addressing all these three indicators might not be equivalent affected by the financial constraints such that eco-innovation might necessitate more financial resources than other two dimensions which also impact firms' non-environmentalist behavior in each dimension.

Besides, we measure coercive forces by the World Governance Indicators (WGI) based on the average of government effectiveness, control of corruption, political stability

[1] In decomposing Non_ENV further into Non_RES, Non_EMIS, and Non_EINN, we stick to the environmental pillar scoring and description of the data source (i.e., Thomson Reuters Eikon) (Refinitiv, 2022).

and absence of violence/terrorism, the rule of law, regulatory quality, and voice and accountability (All metrics range from -2.5 to 2.5) (Uyar *et al.*, 2021). The WGI data is obtained from the publicly available website of the World Bank (2021). We assess mimetic forces by the affiliation with polluting industry (PIND), which takes1 if sectors are from basic materials, energy, industrials, and utilities, 0 otherwise (Sun *et al.*, 2019b; Wasiuzzaman *et al.*, 2021). By integrating the "year" (fiscal year) variable, we measured increasing/decreasing tendencies in non-environmentalist propensity over the years. In line with H1, H2, and H3, we expect that coercive forces (public governance), mimetic forces (pollution sector affiliation), and time trend over years should have a negative association with non-environmentalist propensity.

To alleviate omitted variable bias, we integrated three sets of control variables, including CSR mechanisms, board attributes, and financial characteristics. First, two primary CSR mechanisms playing a potential role in environmental engagement are the existence of an executive environmental, social, and governance (ESG) compensation policy (EXP) (i.e., 1 if it exists or not 0) and the existence of a sustainability committee (SCO) in the firm (i.e., 1) or not (i.e., 0) (Jain and Zaman, 2020; Wasiuzzaman *et al.*, 2021). The CSR mechanisms are expected to alleviate non-environmentalist tendency as they prioritize addressing stakeholders' environmental and social concerns.

Second, board characteristics that might play a role in adopting environmental policies and practices are board size (BS), board gender diversity (BGD), board independence (BIN), board experience and skills (BSK), and CEO duality (CEOd) (Wasiuzzaman *et al.*, 2021; Kuzey *et al.*, 2022). While larger boards are considered inefficient and board expertise and skills focus more intensively on financial performance, board size and board

expertise and skills are expected to exacerbate non-environmentalist tendency. Empowered CEOs with dual roles also tend to ignore the expectations of stakeholders, and hence drive firms to behave in non-environmentalist manner. On the contrary, independent and female directors are considered more stakeholder-oriented such that board independence and gender diversity are expected to mitigate non-environmentalist tendency.

Finally, financial characteristics might encourage or discourage environmentalist tendencies, such as firm size (FS), firm value (TQ), dividend payout (DP), cash flow (CF), capital expenditures (CE), research and development expenditures (RD), and leverage (LV) (Wasiuzzaman *et al.*, 2021; Kuzey *et al.*, 2022). Larger firms are exposed to greater scrutiny, cash-rich firms have more resources to deploy to environmental engagement, innovative firms have greater know-how to develop solutions for ecological issues, and dividend paying firms need align with social expectations to avoid legitimacy concerns. That is why large, cash-rich, innovative, and dividend-paying firms are expected to have negative association with environmentalist tendency. On the contrary, investing firms, firms with growth opportunity, and indebted firms are under greater financial pressure which might increase their environmentalist tendency. The data for control variables were also collected from the Thomson Reuters Eikon database. Please see the descriptions of all research variables in Table 1.

--- Insert Table 1 Here ---

3.2. Sample

The sample selection in this study is based on the availability of ESG scoring from Thomson Reuters Eikon starting in 2002, creating a dataset spanning from 2002 to 2019.

The initial dataset of 59,193 observations undergoes careful preprocessing to ensure robust hypothesis testing. This includes winsorizing variables with significant variability, such as BS, TQ, DP, CF, CE, RD, and LV, and removing 21 outliers identified using the minimum covariance determinant method (Verardi and Dehon, 2010). Additionally, a rigorous missing value analysis is performed, employing the Markov Chain Monte Carlo method for variables with less than five percent missing data, except for DP, which exceeds this threshold. The resulting dataset, with 59,172 observations across 65 countries, provides a reliable basis for the study's analyses, ensuring the integrity of the research findings.

The sample period covers the period between 2002 and 2019, as 2002 is the initial year of ESG scoring of firms in the Thomson Reuters Eikon database, and 2019 was the latest period for which the data were available at the time we initiated the study. Hence, whether firms engage with environmental practices or not is available from 2002 onward. Following the retrieval of the initial data set, the raw sample is retrieved, cleaned, and prepared for the forthcoming phases. The data screening and sampling process are explained in the following paragraphs.

The data preprocessing steps are very important before testing the research hypotheses (Hair *et al.*, 2019). We winsorized some of the research variables after examining the initial summary statistics. Based on the initial analysis results, seven variables, including BS, TQ, DP, CF, CE, RD, and LV, are winsorized due to the high variability around mean values or significant extreme values[2]. Next, we check the

[2] The indicated variables are winsorized at one percent of the two tails. The values at one percent of the tails are replaced by the winsorized counterparts.

possible outliers with the minimum covariance determinant method (Verardi and Dehon, 2010). Following the analysis, 21 significant outliers are detected and removed from the research sample.

Furthermore, we employ missing value analysis. The summary statistics of the missing value analysis indicate that some of the variables have missing values of less than five percent,[3] while only DP has more than five percent missing values. In the final data screening process, the variables with less than five percent missing values are imputed using the Markov Chain Monte Carlo method. However, DP is not imputed since it includes a large percentage of missing values.

The sample distributions are examined in detail. The initial sample was 59,193 observations. It results in 59,172 after excluding the significant outliers (Table 2, Panel A). Regarding the sector-level sample distribution, the ratios range between 2.63% (Telecommunications services) and 22.53% (Financials sectors) [4] (Table 2, Panel B). Regarding the year-level distributions, the ratios of the sample start at 0.69% in 2002 and end at 13.02%, with a steady increase each year (Table 2, Panel B).

The country-level sample distribution is detailed in Table A1 in the Appendix. The research sample includes 65 countries, encompassing 7,702 unique firms and 59,172 data points. Notably, 36.42% of the firms are from the US, 6.14% from the UK, and 6.00% from China. In terms of data points, 31.76% are from the US, 10.10% from Japan, and

[3] The distributions of the missing values are BS-0.35%, BGD-1.61%, BIN-2.62%, FS0.22%, TQ-0.77%, CE-3.59%, LV-0.22%, WGI-0.57%, and CF-0.59%.

[4] The sample distribution based on sector reveals that Financials – 22.53%, Industrials – 16.27%, Consumer Cyclicals – 14.67%, Basic Materials – 10.15%, Technology – 8.77%, Healthcare – 7.07%, Consumer Non-Cyclicals – 6.92%, Energy – 6.79%, Utilities – 4.21%, and Telecommunications Services – 2.63%.

7.72% from the UK. This comprehensive distribution ensures a diverse and representative sample for the study's analyses (see Table A1 in the Appendix for detailed figures).

--- Insert Table 2 Here ---

3.3. Proposed models

The research models incorporate binary categorical variables and employ an industry fixed-effects (FE) logistic regression estimator to test the proposed hypotheses. The industry FE approach is utilized to mitigate potential time-invariant endogeneity concerns (Rjiba *et al.*, 2020; Sun *et al.*, 2019a). By incorporating industry-fixed effects, we control for unobserved heterogeneity specific to industries that remain constant over time. Given that our dataset spans multiple periods and industry levels, the inclusion of fixed effects helps control for omitted variable biases, thus ensuring more accurate and reliable results (Wooldridge, 2010).

The models are formulated in equation (1) below.

$P(Y_i = 1 \mid X_i, Controls) = F(\beta_1 X_i + \beta_2 Controls_i + \beta_3 \sum Industry_i)$; F is the logistic distribution function denoted as $F(z)=exp(z)/(1+exp(z)$ (1).

The dependent variables in the study are Non_ENV, Non_RES, Non_EMIS, and Non_EINN, collectively represented by the term "Yi." The independent variables of interest are WGI, PIND, and Fiscal Year, represented by the term "Xi." Additionally, the control variables include CSR mechanisms (EXP and SCO), board attributes (BS, BGD, BIN, BSK, and CEOd), and financial characteristics (FS, TQ, DP, CF, CE, RD, and LV).

Heteroscedasticity refers to a situation where the variance of the errors in a regression model is not constant across observations. In the presence of heteroscedasticity, estimators can lead to incorrect inferences because the standard errors might be underestimated or overestimated (Wooldridge, 2020). To account for the potential presence of heteroscedasticity in this dataset, robust standard errors, also known as heteroscedasticity-consistent standard errors, are employed (Huber, 1967; White, 1980). The robust option in regression adjusts the standard errors to remain valid even when heteroscedasticity is present, ensuring that statistical inference is reliable despite this issue (Wooldridge, 2020).

To justify the use of robust standard errors, preliminary diagnostic tests were performed to detect the presence of heteroscedasticity. Specifically, the Breusch-Pagan test (Breusch & Pagan, 1979) and the White test (White, 1980) were applied, both of which are widely used to identify heteroscedasticity in regression models. The results of both tests indicated potential heteroscedasticity ($p<0.05$), reinforcing the decision to use robust standard errors for inference.

4. Findings

4.1. Summary Statistics

The research variables are examined using the univariate analysis with mean, standard deviations, and ranges (Table 3, Panel A). In terms of the dependent variables, 23% of the records indicate no environmental engagement (Non_ENV), 30% indicate no resource use engagement (Non_RES), 30% show no emissions reduction engagement (Non_EMIS), and 56% indicate no eco-innovation engagement (Non_EINN). Regarding

the variables of interest, the mean WGI score is 1.10, ranging between -1.56 and 1.97, while 37% of the records are from the polluting industries.

The mean ratios of the dependent variables across the years are reported in Table 3 (Panel B), showing a negative trend. The means of Non_ENV, Non_RES, Non_EMIS, and Non_EINN decreased from 2002 to 2019 steadily.

--- Insert Table 3 Here ---

The linear bivariate correlation coefficients based on the Pearson Correlation coefficients are reported in Table 4. The results reveal that WGI has a linear positive and significant correlation with Non_ENV, Non_RES, and Non_EMIS, while it has a significant and negative correlation with Non_EINN. Moreover, PIND has a significant and negative linear correlation with all the dependent variables, including Non_ENV, Non_RES, Non_EMIS, and Non_EINN.

--- Insert Table 4 Here ---

We also examine the multicollinearity issue among the independent variables (Table A2, Appendix section). The variance inflation factors (VIF) are calculated and reported, which range from 1.03 to 2.21, with a mean value of 1.39. The VIF values are significantly less than the cut-off value of ten (Neter *et al.*, 1996; Kennedy, 2008; Hair *et al.*, 2019), which indicates no threat of multicollinearity.

4.2. Baseline analysis

The research models are subject to the industry FE logistic regression analysis (Table 5). The dependent variables are Non_ENV, Non_RES, Non_EMIS, and Non_EINN, while the variables of interest are WGI, PIND, and fiscal year (Year).

The results reveal that WGI has a significantly negative relationship with all the dependent variables except Non_RES[5]. In addition, PIND has a significant and negative relationship with Non_ENV, Non_RES, and Non_EMIS but has a positive association with Non_EINN. Finally, fiscal year (Year) has a significant and negative relationship with all the dependent variables. Thus, while H1 and H3 are supported for all non-environmentalist proxies, H2 is supported for Non_ENV, Non_RES, and Non_EMIS, but not Non_EINN.

Hence, while coercive forces' (i.e., public governance) association with a non-environmentalist tendency is fully confirmed, mimetic forces' (i.e., polluting sector affiliation) association with a non-environmentalist tendency is confirmed for Non_ENV, Non_RES, and Non_EMIS, but not Non_EINN. Thus, firms domiciled in stronger institutional environments and affiliated with polluting sectors are less likely to be non-environmentalist. Besides, the non-environmentalist tendency has been diminishing over the years. Having said that, it is noteworthy that polluting sector affiliation is positively associated with non-EINN, implying that the sector members are not keen on eco-innovation, for which we suggest implications in the last section.

[5] However, since the negative association between WGI and Non_RES is also supported by five robustness tests (please see the robustness section), we consider H1 to be fully supported for all three dimensions of Non_ENV.

Concerning control variables, firms with CSR mechanisms, namely having a CSR committee and paying executive ESG compensation, are less likely to be non-environmentalists. Among board characteristics, board gender diversity is the most influential one in alleviating non-environmentalist tendencies. Among financial indicators, while larger, dividend-paying, cash-rich, and innovative firms are less likely to be non-environmentalist, firms having more debt and growth opportunities are more likely to be non-environmentalist.

--- Insert Table 5 Here ---

4.3. Robustness checks

We conduct multiple analyses to verify the robustness of the initial baseline results. Specifically, we employ an alternative estimator, address endogeneity concerns, use an alternative dependent variable, and incorporate an alternative sample.

4.3.1. Alternative estimator usage

Initially, we use an alternative estimation type by utilizing the panel regression analysis with a random-effects estimator. The initial research models are re-executed using the random-effects estimator (Table 6), which yields largely similar results to the initial analysis with two exceptions: WGI and PIND do not have a significant association with Non_ENV and Non_EINN (respectively), while they were negatively and positively significant (respectively) in the baseline analysis.

--- Insert Table 6 Here ---

4.3.2. Endogeneity

To examine the endogeneity issue, we discuss the reverse causality issue and utilize the Entropy Balancing and Propensity Score Matching (PSM) approaches.

(i) Reverse causality: First, as the study focuses on institutional predictors of non-environmentalist firms, reverse causality is highly unlikely since firms' practices are highly difficult to cause a change in the institutional environment (Chatjuthamard-Kitsabunnarat *et al.*, 2014). This weakens the reverse causality possibility.

(ii) Entropy Balancing: Second, we perform the Entropy Balancing method (Hainmueller and Xu, 2013) to mitigate the potential endogeneity threat. It minimizes the variations among the variables across the control and treatment groups by reweighting the data by creating a balanced sample (Hainmueller and Xu, 2013). We generate a binary variable with treatment and control groups to reweight the control group to match the covariate moments in the treatment group (Hainmueller, 2012). In this regard, we use the WGI, the variable of interest, to generate a binary variable. The top quartile values of the WGI are assigned a value of one and used as the treatment group, while the rest of the values of the WGI are assigned a value of zero and used as the control group. The entropy balancing approach is widely used to address the endogeneity concern in accounting and finance research (Garcia *et al.*, 2021; Wang *et al.*, 2021; Kyaw *et al.*, 2022).

The baseline research models are re-executed using the Entropy Balancing method (Table 7). The results are not only consistent with the baseline analysis results but also, the association between WGI and Non_RES is significantly negative in the robustness check.

--- Insert Table 7 Here ---

(iii) Propensity Score Matching (PSM): Third, we utilize the PSM method (Leuven and Sianesi, 2003) to control for the endogeneity threat. It is also a commonly performed approach to address endogeneity-related issues (Peel and Makepeace, 2012; Du and Wu, 2019). We use a similar binary variable to generate treatment and control groups. Again, WGI is used to create the treatment and control groups by assigning a value of one for the top quartile values for the treatment group while assigning a value of zero for the rest of the values to generate the control group. The alternative sample is generated using the PSM, and the research models are re-run using the PSM method (Table 8). The results are compatible with the baseline analysis results with improved negative significance between the relationship of WGI and Non_RES in the robustness test.

--- Insert Table 8 Here ---

4.3.3. Alternative dependent variable

Moreover, we replaced the dependent variables with the alternative set of dependent variables by softening the non-environmentalist measurement. Hence, the alternative binary dependent variables are generated by assigning a value of one if the environmental pillar score, resource use score, emissions score, and environmental innovation score are less than ten, while a value of zero is assigned for the rest of the values of these variables. The alternative dependent variables are Non_ENV10, Non_RES10, Non_EMIS10, and Non_EINN10 (1: if environmental pillar score, resource use score, emissions score, and environmental innovation score are less than 10 out of 100; 0: Otherwise). The summary statistics result shows that the mean values of

Non_ENV10 are 35.29%, Non_RES10 is 37.39%, Non_EMIS10 is 36.98%, and Non_EINN10 is 58.20%.

The baseline research models are re-run using the alternative dependent variable (Table 9). The results are compatible with the initial result. Again, the significance of the association between WGI and Non-RES improved in the robustness test.

--- Insert Table 9 Here ---

4.3.4. Alternative sample

Finally, we generate a sub-sample excluding the countries with less than 10 firms (De Jong *et al.*, 2008), presuming that a small number of firms and observations may not yield reliable results. Then, the initial research models are re-examined using the alternative sample (Table 10). Again, the results are compatible with the initial analysis results. The coefficients of WGI with respect to Non_RES became significantly negative in the robustness test.

--- Insert Table 10 Here ---

The initial analysis results not only passed the robustness checks but also revealed that the previously non-significant coefficient of Non_RES became highly significant and negative. This change was observed across various robustness checks, including entropy balancing, propensity score matching (PSM), the use of an alternative dependent variable, and alternative sampling. Therefore, the results demonstrate high robustness to these further checks.

4.4. Further tests

To check whether the outcomes vary across early and recent periods in the pre-and post-Paris Agreement[6], in Table 11, we ran an additional test for the periods 2002-2015 and 2016-2019. We found a striking result that while WGI reduces the non-environmentalist tendency in the period 2002-2015, it increases the non-environmentalist tendency in the period 2016-2019. This is just contrary to what we expected, assuming that the Paris Treaty should mitigate the non-environmentalist tendency. Indeed, this counterintuitive outcome may not only be associated with the Paris Treaty's influence on firms' non-environmentalist tendency, but also whether public governance (i.e. WGI) is influential on deterring firms from behaving in an irresponsible way in ecological issues. This outcome also implies that public regulations are not as impactful in recent periods as they used to be. The only good thing is that WGI has still decreased Non_EINN in the post-Paris agreement period. This could be because the Paris Treaty might have triggered firms to develop and explore long-term viable solutions to resolve ecological concerns. In terms of polluting industry affiliation, no difference was observed in both periods.

--- Insert Table 11 Here ---

In addition, in Table 12, we ran the analysis for developed as well as developing countries. Overall, WGI has a stronger mitigating effect on the non-environmentalist tendency in developed countries than in developing countries. The difference between the two institutional environments is meaningful, particularly in the Non_EINN dimension; while WGI reduces Non_EINN in developed countries, it increases Non_EINN in developing countries. This outcome might imply that developed countries have greater

[6] United Nations Climate Change Conference (COP21) held on 12 December 2015.

financial sources and stronger regulations in mitigating non-environmentalist tendency. In terms of polluting industry affiliation, no difference was observed in both sets of countries.

--- Insert Table 12 Here ---

5. Discussion and conclusion

In previous research, the primary focus has been on assessing environmental performance. In contrast, our study adopts a novel approach, concentrating on firms with no environmental commitment, characterized by a complete absence of eco-friendly practices. We aim to draw attention to this phenomenon for regulators and practitioners, particularly in the context of growing ecological concerns and alarming climate changes. The theoretical foundation of our study is exclusively built on the influence of institutional pressures, stemming from coercive and mimetic forces, as well as the impact of temporal factors.

Our findings can be summarized as follows: First, higher levels of public governance quality act as a deterrent to non-environmental behavior. The most significant discouraging effect is observed in the context of non-eco-innovative engagement, followed by non-emissions and non-resource use engagement. Second, affiliation with polluting industries mitigates non-environmental behavior, including non-emissions and non-resource use engagement. However, it provokes non-eco-innovative engagement. Finally, non-environmental behavior and its three underlying components tend to decrease over time. Control variables reveal that corporate CSR mechanisms and the influence of female directors notably alleviate non-environmental behavior, while financial characteristics of firms can either alleviate or exacerbate it. Our results remain robust

when addressing alternative estimators, samples, and endogeneity concerns through propensity score matching and entropy balancing approaches.

Our findings support the neo-institutional theory from previous studies on corporate environmental performance (Baldini *et al.*, 2018; Gerged *et al.*, 2021a). Building upon DiMaggio and Powell's (1983) work, our study highlights that non-environmental behavior is associated with coercive and mimetic isomorphism linked to national regulations and sectoral trends. Our results align with regional studies showing that coercive pressure enhances environmental disclosure in GCC countries (Gerged *et al.*, 2023) and induces environmental performance in EU countries (Usman, 2020). They also confirm research from both developed and developing countries, indicating that mimetic forces, like affiliation with polluting sectors, influence environmental engagement (Ali and Rizwan, 2013; Channa *et al.*, 2021; Haniffa and Cooke, 2002; Wu and Lin, 2022).

The results suggest that non-environmentalist firms often reside in poorly regulated nations or are affiliated with non-polluting sectors. While comparing the institutional environment between developed and developing markets, Wang et al. (2025) point out multi-institutional actors' (e.g., government, civil society, media) role in disciplining firms regarding environmental and social issues, whereas the government is the most dominant actor in developing nations. Thus, weakening evidence in our findings in developing nations could be weak public institutions coupled with other poor institutions. The evidence concerning the negative association between the polluting sector and non-environmentalist tendencies could be related to the polluting sector's having greater regulatory and legitimacy risks and greater visibility in society (Uyar et al., 2024).

The positive trend in declining non-environmental behavior supports earlier studies, such as the decrease in GHG emissions in the UK following the Carbon Emissions Disclosure Act of 2013 (Broadstock *et al.*, 2018) and improved environmental practices in GCC-affiliated firms due to regulatory pressures (Gerged *et al.*, 2023). Having said that the efficacy of public governance quality is weakening in the post-Paris Treaty period which might imply that the transnational treaty and local public governance substitute each other in lessening firms' non-environmentalist tendency (Haslam, 2018). This could be an example of substitutive roles of coercive and normative forces in firms' environmental engagement such that marginal effect of public governance diminishes after the Paris Treaty is enacted.

Our study extends prior adoptions of institutional theory and expands our understanding of environmental practices' macro-level determinants across various national contexts (Ioannou and Serafeim, 2012; Jackson and Apostolakou, 2010; Jaraitė *et al.*, 2022; Uyar *et al.*, 2024). Our findings underscore the significant role of national governance and sector-specific dynamics in inducing pro- or anti-environmental corporate behaviors (Beltratti and Stulz, 2012; Zhang *et al.*, 2019; Gerged and Almontaser, 2021). Supporting this perspective, Galeazzo et al. (2024) found that the high-polluting sectors in the "global 100 most sustainable corporations in the world" achieve greater adoption of Sustainable Development Goals. Another good example is that a firm's water recycling process target is influenced by its industry peers, outlining the effect of mimetic behavior on pro-environmental behavior (Chen and Huang, 2024).

6. Implications and limitations

Our results indicate that the neo-institutional theory effectively explains non-environmental behavior by highlighting the role of coercive and mimetic forces in discouraging firms from engaging in such practices. Our evidence confirms the proposition of institutional isomorphism such that organizations adopt new structures and practices to conform to institutional actors' pressure such as governmental agencies, non-governmental organizations, professional associations, and industry peers & norms (Wang et al., 2025). Thus, our findings show that in reducing firms' anti-environmental behavior and motivating them to alleviate environmental externalities, external institutions namely governmental policies (i.e., coercive forces) and industry peers (i.e., mimetic forces), play a critical role.

The findings have significant policy and managerial implications as well. Institutional quality at the country level, represented by regulatory forces, rule-making quality, accountability strength, and political stability, is crucial in deterring firms from non-environmental behavior. This suggests that a weak institutional environment may encourage such behavior, emphasizing the need for countries with weak regulations to strengthen their institutional standards. Given the global nature of climate change and ecological concerns, preventing environmental exploitation should be a collective goal for all nations. Additionally, while polluting industries tend to adopt eco-friendly practices due to institutional pressures, their resistance to eco-innovation raises questions about long-term ecological solutions.

In essence, this study does more than just contribute to theoretical discourse; it provides tangible strategies that stakeholders can employ to navigate and promote sustainable practices within firms. Outlining how different pressures and policies can alter

corporate behaviour equips policymakers, industry leaders, and environmental advocates with the knowledge to drive meaningful change. The research emphasizes the importance of tailored approaches, suggesting that what works in one context may not be as effective in another. This nuanced understanding is crucial for designing policies and initiatives that are both ambitious and realistic, taking into account the unique challenges and opportunities in various regions. More concretely, similar institutional characteristics (i.e., coercive and mimetic) play a role in firms' behaviors concerning environmental practices. As stronger coercive pressure mitigates non-environmentalist tendencies, firms in countries with weaker coercive pressure evade environmental practices, implying that they pollute more, emit more hazardous gases, produce more waste, evade recycling, and so on. These findings suggest policymaking implications for countries with poorer public governance quality. Besides, this finding might also alert other institutional mechanisms in developing countries, such as public governance not being sufficient alone in reducing firms' environmental externalities, and hence, civil society, media, and environmentalists might assume greater responsibility for environmental sensibility. It is notable that public governance strength is counterproductive, especially in developing nations, in terms of eco-innovation, which implies that regulations discourage eco-innovation. This point deserves the attention of regulators, and future research should explore why it is so. Given that sectoral affiliation makes a difference, and non-polluting industries escape from engaging with environmental practices, policymakers should pursue non-polluting sectors' behaviours as well as polluting sectors to stimulate them to transform their processes in a friendly way. Having said that, it is notable that although the non-polluting sector fails to address resource use and emissions dimensions, they

are keen on improving eco-innovation, which is good news for long-term solution development for ecological issues.

The results of our study suggest that while governance quality, as measured by WGI, has a generally positive impact on reducing non-environmentalist tendencies, the effectiveness of these measures can vary significantly based on the period and developed/developing countries context. This variability highlights the need for tailored policy approaches that consider the unique institutional, economic, and social landscapes of different countries. Additionally, the findings call for further investigation into why WGI's positive influence waned in the latter period and why developing countries are experiencing the opposite effect. Addressing these issues is crucial for crafting effective and equitable global strategies, ensuring that the benefits of improved governance are realized across all regions and sectors. In addition, although the polluting sector does not align with non-emissions and non-resource tendencies, it aligns with non-eco-innovative engagement. This finding implies that polluting sectors are concerned with reducing immediate environmental externalities rather than long-term solution development, as eco-innovation provides long-term climate change solutions. This finding calls for greater policymaking, monitoring, and scrutiny of actions of basic materials, energy, and industrial sectors by coercive forces.

Our study suggests several areas for future research. Exploring the influence of alternative institutional environment proxies, such as national culture, freedom of the press, and civil organizations, on non-environmental behavior would be valuable. It is also important to investigate whether external economic pressures and uncertainties provoke non-environmental behavior. More research is needed to understand why WGI appears

to have increased non-environmental tendencies during the post-Paris treaty period, requiring further exploration through channel tests. Finally, the differences between developed and developing countries suggest peculiar investigations, especially in developing countries, to lessen environmental tendencies and encourage corporations to promote cleaner production and operational processes. This is primarily why public governance strength in developing countries and affiliation with the polluting sector in both developed and developing countries discourage eco-innovation; this requires further investigation as eco-innovation is of critical importance for fighting against climate change concerns.

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Table 1: Variables

Variable	Description
Non_ENV	Binary variable, which takes 1 for the observations with no environmental engagement and 0 otherwise.
Non_RES	Binary variable, which takes 1 for the observations with no resource use engagement, and 0 otherwise.
Non_EMIS	Binary variable, which takes 1 for the observations with no emissions reduction engagement, and 0 otherwise.
Non_EINN	Binary variable, which takes 1 for the observations with no eco-innovation engagement and 0 otherwise.
WGI	World Governance Indicators' (six metrics) average, which consists of government effectiveness, control of corruption, political stability and absence of violence/terrorism, the rule of law, regulatory quality, and voice and accountability (All metrics range from -2.5 to 2.5).
PIND	Polluting industry, which takes 1 if sectors are from basic materials, energy, industrials, and utilities, 0 otherwise
EXP	Existence of an executive ESG compensation policy (i.e., 1) or not (i.e., 0).
SCO	Existence of a sustainability committee in the firm (i.e., 1) or not (i.e., 0).
BS	Number of directors on board.
BGD	Female directors' proportion on board.
BIN	Independent directors' proportion on board.
BSK	1 if the firm describes the professional experience, skills, or the age of directors, 0 otherwise.
CEOd	CEO duality takes 1 if the chairperson and CEO are the same person and 0 if not.
FS	Total assets natural logarithm.
TQ	Market capitalisation plus total liabilities scaled by total assets.
DP	Dividend paid scaled by total assets.
CF	Earnings before interest and tax plus depreciation and amortisation scaled by total assets.
CE	Capital expenditures are scaled by total assets.
RD	Research & development expenditures scaled by total assets.
LV	Total liabilities are scaled by total assets.

Source: Authors' own work

Table 2: Sample distribution

Panel A

Initial sample	59,193
(-) Outliers	21
Final Sample	59,172

Panel B

Variable	Categories	Freq.	Percent
Sector	Basic Materials	6,003	10.15
	Consumer Cyclicals	8,680	14.67
	Consumer Non-Cyclicals	4,095	6.92
	Energy	4,016	6.79
	Financials	13,332	22.53
	Healthcare	4,184	7.07
	Industrials	9,629	16.27
	Technology	5,188	8.77
	Telecommunications Services	1,555	2.63
	Utilities	2,490	4.21
	Total	*59,172*	*100.00*
Year	2002	410	0.69
	2003	657	1.11
	2004	1,097	1.85
	2005	1,533	2.59
	2006	1,640	2.77
	2007	1,776	3.00
	2008	2,061	3.48
	2009	2,480	4.19
	2010	2,892	4.89
	2011	3,284	5.55
	2012	3,454	5.84
	2013	3,590	6.07
	2014	3,786	6.40
	2015	4,469	7.55
	2016	5,383	9.10
	2017	6,120	10.34
	2018	6,838	11.56
	2019	7,702	13.02
	Total	*59,172*	*100.00*

Source: Authors' own work

Table 3: Summary statistics

Panel A: Descriptive statistics of the variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Non_ENV	59,172	0.23	0.42	0.00	1.00
Non_RES	59,172	0.30	0.46	0.00	1.00
Non_EMIS	59,172	0.30	0.46	0.00	1.00
Non_EINN	59,172	0.56	0.50	0.00	1.00
WGI	59,172	1.10	0.60	-1.56	1.97
PIND	59,172	0.37	0.48	0.00	1.00
EXP	59,172	0.22	0.41	0.00	1.00
SCO	59,172	0.44	0.50	0.00	1.00
BS	59,172	10.18	3.47	4.00	21.00
BGD	59,172	13.75	12.46	0.00	100.00
BIN	59,172	74.31	20.92	0.00	100.00
BSK	59,172	0.89	0.32	0.00	1.00
CEOd	59,172	0.38	0.49	0.00	1.00
FS	59,172	22.44	1.82	10.65	29.10
TQ	59,172	1.81	1.41	0.62	9.36
DP	46,054	0.03	0.03	0.00	0.21
CF	59,172	0.10	0.10	-0.34	0.42
CE	59,172	0.05	0.07	0.00	0.42
RD	59,172	0.01	0.04	0.00	0.27
LV	59,172	0.59	0.23	0.05	1.16

Panel B: Yearly mean value of the dependent variables (%)

Year	Non_ENV	Non_RES	Non_EMIS	Non_EINN
2002	42.93	50.98	50.73	83.66
2003	44.75	53.12	52.05	84.32
2004	45.85	54.33	53.97	83.59
2005	44.29	52.84	51.34	82.84
2006	38.54	47.62	45.85	81.34
2007	28.38	36.60	36.09	69.59
2008	20.43	28.77	28.29	59.68
2009	19.31	27.66	26.98	54.52
2010	18.88	27.59	26.87	53.84
2011	16.96	25.61	25.43	52.62
2012	15.72	23.39	23.48	50.49
2013	15.65	23.29	23.29	49.30
2014	16.32	23.48	24.19	50.45
2015	20.50	27.61	28.80	54.08
2016	24.48	32.47	32.84	55.27
2017	25.08	33.12	32.86	55.15
2018	22.89	30.51	30.27	53.85
2019	19.33	26.84	26.71	51.65

The mean values are converted to percentage format (%). **Source: Authors' own work**

Table 4: Correlation coefficients

	Variable	1	2	3	4	5	6	7	8	9	10
1	Non_ENV	1									
2	Non_RES	0.805*	1								
3	Non_EMIS	0.818*	0.700*	1							
4	Non_EINN	0.382*	0.367*	0.349*	1						
5	WGI	0.044*	0.049*	0.036*	-0.012*	1					
6	PIND	-0.197*	-0.148*	-0.192*	-0.047*	0.012*	1				
7	EXP	-0.152*	-0.158*	-0.171*	-0.088*	0.142*	0.144*	1			
8	SCO	-0.428*	-0.482*	-0.482*	-0.351*	-0.011*	0.129*	0.227*	1		
9	BS	-0.153*	-0.177*	-0.187*	-0.173*	-0.139*	-0.002	-0.014*	0.195*	1	
10	BGD	-0.101*	-0.127*	-0.112*	-0.104*	0.138*	-0.097*	0.217*	0.139*	0.013*	1
11	BIN	0.003	-0.008	-0.002	0.024*	0.046*	-0.022*	0.178*	-0.009*	-0.013*	0.301*
12	BSK	-0.002	0.005	0.001	-0.012*	0.164*	-0.022*	0.100*	0.022*	-0.178*	0.125*
13	CEOd	0.059*	0.069*	0.056*	0.008	0.029*	-0.022*	-0.033*	-0.053*	0.054*	-0.026*
14	FS	-0.252*	-0.281*	-0.299*	-0.243*	-0.114*	-0.067*	0.055*	0.273*	0.514*	0.048*
15	TQ	0.154*	0.141*	0.156*	0.067*	0.015*	-0.119*	-0.034*	-0.117*	-0.179*	0.049*
16	DP	0.014*	0.010*	0.022*	0.069*	-0.003	-0.036*	0.028*	-0.030*	-0.171*	0.073*
17	CF	-0.142*	-0.131*	-0.122*	0.066*	0	0.083*	0.049*	0.060*	-0.029*	0.036*
18	CE	0	-0.003	-0.001	0.102*	0.030*	0.172*	0.026*	-0.015*	-0.146*	-0.053*
19	RD	0.163*	0.137*	0.148*	-0.080*	0.083*	-0.151*	-0.052*	-0.096*	-0.135*	-0.003
20	LV	-0.061*	-0.063*	-0.089*	-0.093*	-0.065*	-0.065*	0.035*	0.077*	0.264*	0.093*
	Variable	11	12	13	14	15	16	17	18	19	20
11	BIN	1									
12	BSK	0.100*	1								
13	CEOd	-0.020*	0.010*	1							
14	FS	0.046*	-0.072*	0.069*	1						
15	TQ	0.042*	0.061*	0.046*	-0.380*	1					
16	DP	0.083*	0.046*	-0.040*	-0.358*	0.571*	1				
17	CF	0.026*	0.027*	0.047*	-0.072*	0.284*	0.582*	1			
18	CE	0.030*	0.011*	-0.029*	-0.219*	0.058*	0.126*	0.175*	1		
19	RD	0.008	0.052*	0.040*	-0.271*	0.354*	0.096*	-0.302*	-0.035*	1	
20	LV	0.110*	-0.053*	0.036*	0.470*	-0.196*	-0.259*	-0.131*	-0.217*	-0.195*	1

p<0.05.* **Source: Authors' own work

Table 5: The association between institutional factors and non-environmentalist tendency

Independent variables	(1) Non_ENV	(2) Non_RES	(3) Non_EMIS	(4) Non_EINN
WGI	-0.069***	-0.025	-0.15***	-0.24***
	(-2.69)	(-1.12)	(-6.64)	(-12.62)
PIND	-1.62***	-1.07***	-1.38***	0.19***
	(-14.39)	(-11.08)	(-14.12)	(2.60)
Year	-0.082***	-0.068***	-0.076***	-0.093***
	(-23.27)	(-21.25)	(-23.27)	(-32.19)
EXP	-0.43***	-0.37***	-0.42***	-0.030
	(-9.10)	(-9.49)	(-10.32)	(-1.07)
SCO	-2.75***	-2.37***	-2.35***	-1.16***
	(-50.52)	(-64.39)	(-63.02)	(-50.85)
BS	0.0095**	-0.0057	-0.0016	-0.023***
	(1.96)	(-1.31)	(-0.37)	(-6.38)
BGD	-0.013***	-0.015***	-0.013***	-0.0053***
	(-9.77)	(-12.39)	(-10.33)	(-5.29)
BIN	0.0011	-0.00036	0.0011*	0.0039***
	(1.53)	(-0.59)	(1.74)	(7.34)
BSK	0.016	0.11***	0.068*	0.077**
	(0.35)	(2.69)	(1.67)	(2.25)
CEOd	0.36***	0.39***	0.30***	0.033
	(12.14)	(14.57)	(10.96)	(1.46)
FS	-0.52***	-0.51***	-0.57***	-0.39***
	(-37.06)	(-40.84)	(-44.19)	(-40.64)
TQ	0.13***	0.15***	0.12***	0.045***
	(8.50)	(9.86)	(8.12)	(3.22)
DP	-4.19***	-4.28***	-4.81***	-1.20***
	(-7.94)	(-8.85)	(-9.86)	(-2.73)
CF	-2.21***	-2.51***	-2.13***	0.28
	(-8.48)	(-10.42)	(-8.78)	(1.26)
CE	-0.25	-1.31***	-0.77***	1.22***
	(-1.08)	(-6.03)	(-3.50)	(5.15)
RD	-10.3***	-7.91***	-8.78***	-8.05***
	(-12.40)	(-10.90)	(-12.13)	(-13.78)
LV	0.51***	0.67***	0.39***	0.055
	(6.83)	(9.79)	(5.59)	(0.91)
Constant	176.7***	148.7***	166.4***	197.3***
	(24.47)	(22.72)	(24.88)	(33.46)
Industry FE	Yes	Yes	Yes	Yes
N	46054	46054	46054	46054
Pseudo R^2	0.312	0.298	0.314	0.193
χ^2-stat.	13750.68***	15710.88***	16490.28***	12229.22***
White Test (p-value)	<0.01	<0.01	<0.01	<0.01
Breusch-Pagan test (p-value)	<0.01	<0.01	<0.01	<0.01

t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robust standard errors are reported. **Source: Authors' own work**

Robustness tests

Table 6: Alternative estimator using random-effects panel logit regression analysis

Independent variables	(1) Non_ENV	(2) Non_RES	(3) Non_EMIS	(4) Non_EINN
WGI	-0.13	-0.15	-0.41***	-0.48***
	(-0.96)	(-1.31)	(-3.50)	(-3.85)
PIND	-5.07***	-3.32***	-4.29***	-0.43
	(-8.08)	(-6.01)	(-7.67)	(-0.69)
Year	-0.49***	-0.44***	-0.44***	-0.37***
	(-36.38)	(-38.70)	(-38.51)	(-41.26)
EXP	-0.72***	-0.64***	-0.46***	-0.51***
	(-4.82)	(-5.32)	(-3.74)	(-5.78)
SCO	-4.62***	-3.56***	-3.89***	-2.17***
	(-25.61)	(-31.34)	(-31.96)	(-29.62)
BS	0.056***	0.0056	0.018	-0.021*
	(3.25)	(0.37)	(1.19)	(-1.71)
BGD	-0.026***	-0.019***	-0.020***	0.0032
	(-5.69)	(-4.86)	(-5.17)	(0.98)
BIN	0.0014	0.00016	0.00048	0.0045**
	(0.59)	(0.07)	(0.22)	(2.28)
BSK	0.11	0.18*	0.013	-0.19**
	(0.94)	(1.75)	(0.13)	(-2.17)
CEOd	0.18*	0.13	0.15*	-0.11
	(1.77)	(1.50)	(1.73)	(-1.42)
FS	-1.90***	-1.80***	-1.88***	-1.38***
	(-29.06)	(-32.22)	(-33.00)	(-26.95)
TQ	0.30***	0.26***	0.26***	0.30***
	(6.04)	(5.75)	(5.87)	(6.53)
DP	-7.87***	-6.97***	-7.21***	-6.93***
	(-5.55)	(-5.42)	(-5.69)	(-5.48)
CF	-2.61***	-1.38**	-2.84***	0.95
	(-3.59)	(-2.07)	(-4.36)	(1.53)
CE	-0.81	-1.26*	-0.39	1.15
	(-1.08)	(-1.81)	(-0.57)	(1.55)
RD	-21.1***	-16.2***	-20.2***	-15.1***
	(-6.17)	(-5.23)	(-6.10)	(-5.18)
LV	0.96***	1.37***	0.30	0.19
	(3.00)	(4.88)	(1.04)	(0.71)
Constant	1034.8***	924.4***	927.3***	779.1***
	(37.25)	(39.83)	(39.71)	(42.88)
Industry FE	Yes	Yes	Yes	Yes
N	46054	46054	46054	46054
χ^2-stat.	2512.74***	3650.30***	3469.68***	4738.79***

t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Robust standard errors are reported. **Source: Authors' own work**

Table 7: Entropy Balancing

Independent variables	(1) Non_ENV	(2) Non_RES	(3) Non_EMIS	(4) Non_EINN
WGI	-0.32***	-0.18***	-0.25***	-0.32***
	(-8.58)	(-5.52)	(-7.53)	(-11.53)
PIND	-1.26***	-0.79***	-1.16***	0.24***
	(-8.78)	(-6.45)	(-9.30)	(2.63)
Year	-0.10***	-0.080***	-0.097***	-0.096***
	(-17.71)	(-15.91)	(-19.34)	(-22.05)
EXP	-0.36***	-0.35***	-0.42***	0.012
	(-5.94)	(-6.97)	(-8.18)	(0.34)
SCO	-2.48***	-2.09***	-2.12***	-0.93***
	(-34.34)	(-42.33)	(-41.74)	(-28.09)
BS	0.0016	-0.0036	-0.013*	-0.015***
	(0.21)	(-0.51)	(-1.90)	(-2.64)
BGD	-0.010***	-0.015***	-0.010***	-0.0095***
	(-5.34)	(-8.80)	(-6.09)	(-6.44)
BIN	-0.0034***	-0.0058***	-0.0032***	-0.0083***
	(-2.65)	(-4.90)	(-2.66)	(-7.73)
BSK	-0.089	-0.081	-0.085	-0.15**
	(-1.27)	(-1.28)	(-1.34)	(-2.48)
CEOd	0.46***	0.54***	0.41***	0.090***
	(10.60)	(13.71)	(10.24)	(2.72)
FS	-0.51***	-0.50***	-0.57***	-0.34***
	(-24.00)	(-27.22)	(-29.24)	(-24.70)
TQ	0.089***	0.12***	0.094***	0.020
	(3.78)	(5.41)	(4.16)	(1.01)
DP	-3.35***	-4.08***	-4.12***	-2.54***
	(-4.11)	(-5.61)	(-5.54)	(-4.11)
CF	-1.75***	-1.88***	-2.12***	1.16***
	(-4.03)	(-4.67)	(-4.94)	(3.07)
CE	0.48	-1.31***	-0.022	1.19***
	(1.54)	(-4.74)	(-0.07)	(3.45)
RD	-8.67***	-6.40***	-8.05***	-3.79***
	(-7.50)	(-6.90)	(-7.57)	(-4.35)
LV	0.45***	0.71***	0.25**	0.0062
	(3.96)	(6.87)	(2.45)	(0.07)
Constant	215.3***	173.4***	209.4***	202.9***
	(18.47)	(16.82)	(20.40)	(22.79)
Industry FE	Yes	Yes	Yes	Yes
N	46054	46054	46054	46054
Pseudo R^2	0.301	0.280	0.313	0.171
χ^2-stat.	3307.85***	4144.93***	4740.05***	3856.24***

Top quartile of WGI is used for the treatment group (1), while the rest of it is used as the control group (0).
t statistics in parentheses. * *p < 0.10,* ** *p < 0.05,* *** *p < 0.01*
Robust standard errors are reported. **Source: Authors' own work**

Table 8: Propensity Score Matching

Independent variables	(1) Non_ENV	(2) Non_RES	(3) Non_EMIS	(4) Non_EINN
WGI	-0.33***	-0.18***	-0.32***	-0.29***
	(-7.00)	(-4.31)	(-7.48)	(-8.58)
PIND	-1.37***	-0.94***	-1.14***	0.37***
	(-8.10)	(-6.44)	(-7.57)	(3.42)
Year	-0.093***	-0.075***	-0.085***	-0.10***
	(-16.66)	(-15.10)	(-16.60)	(-22.67)
EXP	-0.38***	-0.41***	-0.37***	0.10***
	(-5.88)	(-7.61)	(-6.75)	(2.59)
SCO	-2.48***	-2.02***	-2.12***	-0.91***
	(-31.06)	(-37.76)	(-38.14)	(-25.12)
BS	0.015*	0.0044	-0.00097	-0.014**
	(1.72)	(0.58)	(-0.12)	(-2.39)
BGD	-0.012***	-0.015***	-0.014***	-0.011***
	(-6.34)	(-8.80)	(-7.76)	(-7.77)
BIN	-0.0027*	-0.0059***	-0.0031**	-0.0075***
	(-1.86)	(-4.61)	(-2.32)	(-6.62)
BSK	-0.21**	-0.15**	-0.19**	-0.14*
	(-2.51)	(-1.97)	(-2.39)	(-1.94)
CEOd	0.46***	0.51***	0.41***	0.077*
	(8.71)	(10.77)	(8.37)	(1.88)
FS	-0.58***	-0.55***	-0.62***	-0.36***
	(-25.35)	(-27.52)	(-29.99)	(-24.09)
TQ	0.096***	0.12***	0.088***	0.028
	(4.11)	(5.23)	(3.92)	(1.31)
DP	-3.28***	-3.57***	-3.48***	-2.77***
	(-4.40)	(-5.22)	(-5.02)	(-4.44)
CF	-2.05***	-2.25***	-2.47***	0.74**
	(-5.50)	(-6.51)	(-7.00)	(2.32)
CE	0.71**	-0.52*	-0.019	1.92***
	(2.37)	(-1.81)	(-0.07)	(6.09)
RD	-8.25***	-6.96***	-7.62***	-4.73***
	(-7.12)	(-6.64)	(-7.27)	(-5.51)
LV	0.51***	0.67***	0.39***	-0.084
	(4.29)	(6.26)	(3.54)	(-0.90)
Constant	200.7***	163.6***	185.8***	211.8***
	(17.53)	(16.15)	(17.76)	(23.50)
Industry FE	Yes	Yes	Yes	Yes
N	19105	19105	19105	19105
Pseudo R^2	0.311	0.287	0.319	0.181
χ^2-stat.	5511.44***	6159.06***	6872.50***	4718.78***

Top quartile of WGI is used for the treatment group (1), while the rest of it is used as the control group (0).
t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Robust standard errors are reported. **Source: Authors' own work**

Table 9: Alternative dependent variables

Independent variables	(1) Non_ENV10	(2) Non_RES10	(3) Non_EMIS10	(4) Non_EINN10
WGI	-0.15***	-0.095***	-0.18***	-0.28***
	(-6.95)	(-4.52)	(-8.41)	(-14.88)
PIND	-1.23***	-0.95***	-1.22***	0.21***
	(-13.58)	(-10.88)	(-13.75)	(2.95)
Year	-0.058***	-0.050***	-0.059***	-0.092***
	(-18.43)	(-16.31)	(-18.98)	(-31.73)
EXP	-0.37***	-0.37***	-0.44***	-0.023
	(-9.95)	(-10.49)	(-11.98)	(-0.82)
SCO	-2.26***	-2.14***	-2.18***	-1.14***
	(-70.60)	(-73.05)	(-72.01)	(-49.82)
BS	-0.017***	-0.016***	-0.012***	-0.024***
	(-3.99)	(-3.98)	(-2.94)	(-6.79)
BGD	-0.017***	-0.017***	-0.014***	-0.0061***
	(-14.13)	(-14.86)	(-12.25)	(-6.16)
BIN	0.00048	-0.0022***	0.0019***	0.0041***
	(0.78)	(-3.73)	(3.25)	(7.78)
BSK	0.067*	0.11***	0.095**	0.071**
	(1.74)	(2.81)	(2.50)	(2.07)
CEOd	0.29***	0.26***	0.25***	0.055**
	(11.06)	(10.09)	(9.74)	(2.44)
FS	-0.55***	-0.52***	-0.56***	-0.39***
	(-45.10)	(-44.08)	(-46.24)	(-40.32)
TQ	0.12***	0.13***	0.12***	0.042***
	(8.09)	(9.03)	(8.07)	(2.99)
DP	-4.87***	-4.14***	-4.70***	-0.92**
	(-10.27)	(-8.98)	(-10.09)	(-2.07)
CF	-1.90***	-2.41***	-2.46***	0.22
	(-8.02)	(-10.43)	(-10.49)	(1.00)
CE	-1.01***	-1.73***	-1.05***	1.03***
	(-4.64)	(-8.17)	(-4.83)	(4.37)
RD	-10.7***	-8.40***	-8.12***	-7.21***
	(-14.88)	(-12.26)	(-11.90)	(-12.43)
LV	0.76***	0.71***	0.46***	0.14**
	(11.29)	(10.94)	(6.92)	(2.27)
Constant	129.7***	112.7***	132.0***	195.0***
	(20.21)	(18.12)	(20.84)	(32.99)
Industry FE	Yes	Yes	Yes	Yes
N	46054	46054	46054	46054
Pseudo R^2	0.312	0.288	0.303	0.187
χ^2-stat.	17685.64***	16837.69***	17513.44***	11771.43***

The alternative dependent variables are Non_ENV10, Non_RES10, Non_EMIS10, and Non_EINN10 (1: if environmental pillar score, resource use score, emissions score, and environmental innovation scores are less than 10 out of 100; 0: Otherwise).

t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robust standard errors are reported. **Source: Authors' own work**

Table 10: Alternative sample: Excluding countries with less than ten firms

Independent variables	(1) Non_ENV	(2) Non_RES	(3) Non_EMIS	(4) Non_EINN
WGI	-0.14***	-0.085***	-0.17***	-0.29***
	(-6.28)	(-3.96)	(-7.76)	(-15.00)
PIND	-1.25***	-0.96***	-1.23***	0.18**
	(-13.58)	(-10.81)	(-13.69)	(2.52)
Year	-0.057***	-0.049***	-0.058***	-0.092***
	(-18.17)	(-16.10)	(-18.75)	(-31.68)
EXP	-0.37***	-0.38***	-0.44***	-0.015
	(-9.90)	(-10.59)	(-11.94)	(-0.54)
SCO	-2.26***	-2.14***	-2.18***	-1.13***
	(-70.38)	(-72.76)	(-71.80)	(-49.41)
BS	-0.016***	-0.014***	-0.011**	-0.023***
	(-3.77)	(-3.53)	(-2.53)	(-6.50)
BGD	-0.017***	-0.017***	-0.014***	-0.0063***
	(-14.39)	(-15.02)	(-12.47)	(-6.29)
BIN	0.00050	-0.0021***	0.0020***	0.0040***
	(0.82)	(-3.62)	(3.33)	(7.66)
BSK	0.077**	0.12***	0.11***	0.074**
	(1.97)	(3.24)	(2.92)	(2.14)
CEOd	0.29***	0.26***	0.25***	0.056**
	(10.98)	(10.05)	(9.63)	(2.47)
FS	-0.55***	-0.51***	-0.55***	-0.39***
	(-44.62)	(-43.66)	(-45.82)	(-40.45)
TQ	0.12***	0.13***	0.12***	0.042***
	(8.15)	(9.08)	(8.18)	(2.99)
DP	-4.85***	-4.14***	-4.71***	-0.98**
	(-10.18)	(-8.93)	(-10.06)	(-2.19)
CF	-1.86***	-2.37***	-2.44***	0.25
	(-7.86)	(-10.25)	(-10.38)	(1.12)
CE	-1.00***	-1.70***	-1.02***	1.02***
	(-4.56)	(-7.99)	(-4.72)	(4.33)
RD	-10.7***	-8.35***	-8.08***	-7.23***
	(-14.84)	(-12.21)	(-11.84)	(-12.46)
LV	0.77***	0.72***	0.47***	0.15**
	(11.43)	(10.98)	(7.05)	(2.46)
Constant	128.2***	111.5***	130.7***	195.2***
	(19.94)	(17.89)	(20.59)	(32.95)
Industry FE	Yes	Yes	Yes	Yes
N	45772	45772	45772	45772
Pseudo R^2	0.311	0.288	0.302	0.187
χ^2-stat.	17540.32***	16671.92***	17372.52***	11708.15***

We formed the alternative sample, Excluding countries with less than ten firms, and re-run the analysis.
t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Robust standard errors are reported. **Source: Authors' own work**

Table 11: Alternative sample (2002-2015 and 2016-2019 periods)

Independent variables	(1) Non_ENV	(2) Non_RES	(3) Non_EMIS	(4) Non_EINN	(5) Non_ENV	(6) Non_RES	(7) Non_EMIS	(8) Non_EINN
	2002-2015	2002-2015	2002-2015	2002-2015	2016-2019	2016-2019	2016-2019	2016-2019
WGI	-0.20***	-0.16***	-0.30***	-0.23***	0.12***	0.14***	0.057	-0.27***
	(-6.02)	(-5.24)	(-9.77)	(-8.65)	(2.85)	(3.96)	(1.59)	(-9.84)
PIND	-1.58***	-1.04***	-1.35***	0.067	-1.53***	-0.95***	-1.36***	0.40***
	(-11.73)	(-9.01)	(-11.35)	(0.73)	(-7.44)	(-5.30)	(-7.69)	(3.26)
Year	-0.11***	-0.085***	-0.093***	-0.14***	-0.13***	-0.11***	-0.14***	-0.063***
	(-19.65)	(-16.77)	(-17.67)	(-29.71)	(-6.01)	(-5.77)	(-7.08)	(-4.08)
EXP	-0.43***	-0.40***	-0.39***	0.018	-0.42***	-0.35***	-0.46***	-0.054
	(-6.79)	(-7.61)	(-7.00)	(0.47)	(-6.07)	(-5.78)	(-7.73)	(-1.27)
SCO	-2.67***	-2.25***	-2.40***	-1.13***	-2.83***	-2.50***	-2.24***	-1.11***
	(-39.54)	(-49.37)	(-49.48)	(-37.11)	(-30.07)	(-39.31)	(-37.67)	(-30.92)
BS	-0.0023	-0.015***	-0.0079	-0.022***	0.033***	0.0068	0.0078	-0.024***
	(-0.40)	(-2.84)	(-1.49)	(-4.81)	(3.57)	(0.82)	(0.96)	(-3.87)
BGD	-0.0053***	-0.0098***	-0.0033*	-0.0058***	-0.023***	-0.021***	-0.023***	-0.0072***
	(-2.81)	(-5.78)	(-1.91)	(-3.99)	(-11.42)	(-11.69)	(-12.63)	(-5.09)
BIN	0.0017**	0.00088	0.00085	0.0041***	-0.0032**	-0.0058***	-0.00029	0.0023**
	(2.13)	(1.22)	(1.13)	(6.52)	(-2.17)	(-4.45)	(-0.22)	(2.29)
BSK	0.043	0.099**	0.11**	0.087**	-0.18*	0.059	-0.11	0.17**
	(0.86)	(2.18)	(2.30)	(2.08)	(-1.87)	(0.69)	(-1.34)	(2.56)
CEOd	0.37***	0.34***	0.32***	-0.0070	0.29***	0.45***	0.24***	0.10***
	(9.97)	(10.12)	(9.13)	(-0.24)	(5.84)	(9.89)	(5.35)	(2.87)
FS	-0.46***	-0.45***	-0.54***	-0.37***	-0.61***	-0.61***	-0.62***	-0.44***
	(-25.29)	(-27.83)	(-31.95)	(-27.79)	(-26.59)	(-29.49)	(-30.08)	(-30.00)
TQ	0.16***	0.14***	0.15***	0.087***	0.080***	0.14***	0.075***	0.0011
	(7.67)	(7.00)	(7.21)	(4.12)	(3.43)	(6.48)	(3.48)	(0.06)
DP	-4.30***	-4.47***	-4.67***	-1.01*	-3.03***	-3.48***	-4.68***	-1.09*
	(-6.39)	(-7.23)	(-7.40)	(-1.68)	(-3.48)	(-4.38)	(-5.92)	(-1.65)
CF	-2.25***	-2.40***	-2.40***	0.12	-2.65***	-3.12***	-2.03***	0.12
	(-6.83)	(-7.93)	(-7.73)	(0.41)	(-5.94)	(-7.48)	(-5.00)	(0.34)
CE	0.47	-0.21	-0.39	2.19***	-0.62*	-2.26***	-0.85***	0.62*
	(1.42)	(-0.67)	(-1.21)	(6.30)	(-1.87)	(-6.99)	(-2.68)	(1.89)
RD	-13.8***	-10.8***	-11.5***	-8.96***	-5.88***	-4.28***	-4.70***	-7.79***
	(-12.37)	(-11.24)	(-11.91)	(-11.55)	(-4.57)	(-3.71)	(-4.17)	(-8.50)
LV	0.065	0.29***	0.11	-0.38***	1.04***	1.11***	0.73***	0.46***
	(0.67)	(3.29)	(1.19)	(-4.57)	(8.76)	(10.16)	(6.77)	(5.14)
Constant	232.0***	181.6***	199.3***	300.2***	276.4***	241.1***	290.9***	136.3***
	(20.35)	(17.63)	(18.70)	(30.40)	(6.30)	(6.10)	(7.42)	(4.40)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	27153	27153	27153	27153	18901	18901	18901	18901
Pseudo R^2	0.303	0.277	0.313	0.200	0.337	0.338	0.323	0.194
χ^2-stat.	8228.87***	8889.24***	10001.23***	7416.82***	5665.10***	6939.98***	6605.37***	5075.50***

t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are reported. **Source: Authors' own work.**

Table 12: Alternative sample (Developed and Developing countries)

Independent variables	(1) Non_ENV	(2) Non_RES	(3) Non_EMIS	(4) Non_EINN	(5) Non_ENV	(6) Non_RES	(7) Non_EMIS	(8) Non_EINN
	Developed	Developed	Developed	Developed	Developing	Developing	Developing	Developing
WGI	-0.37***	-0.098**	-0.35***	-0.46***	-0.10*	-0.20***	-0.22***	0.11***
	(-6.91)	(-2.01)	(-7.07)	(-11.35)	(-1.85)	(-4.06)	(-4.32)	(2.64)
PIND	-1.68***	-1.07***	-1.34***	0.27***	-1.42***	-1.22***	-1.54***	0.30**
	(-12.48)	(-9.09)	(-11.17)	(3.00)	(-6.52)	(-6.46)	(-8.44)	(2.17)
Year	-0.085***	-0.064***	-0.075***	-0.10***	-0.12***	-0.14***	-0.13***	-0.093***
	(-21.91)	(-18.07)	(-20.85)	(-31.35)	(-11.30)	(-14.56)	(-13.15)	(-11.33)
EXP	-0.39***	-0.36***	-0.41***	0.013	-0.91***	-1.04***	-0.68***	-0.24***
	(-8.13)	(-8.76)	(-9.63)	(0.42)	(-4.12)	(-5.54)	(-4.30)	(-2.74)
SCO	-2.78***	-2.31***	-2.39***	-1.14***	-2.60***	-2.52***	-2.10***	-1.11***
	(-44.60)	(-56.64)	(-55.59)	(-43.97)	(-22.08)	(-27.76)	(-26.47)	(-21.17)
BS	0.0057	-0.0053	-0.0076	-0.023***	-0.00052	-0.020**	0.0033	-0.038***
	(1.04)	(-1.06)	(-1.51)	(-5.50)	(-0.05)	(-2.04)	(0.34)	(-4.92)
BGD	-0.014***	-0.017***	-0.014***	-0.0050***	-0.0080**	-0.0070**	-0.0090***	-0.0051**
	(-9.37)	(-12.67)	(-10.39)	(-4.46)	(-2.28)	(-2.26)	(-2.97)	(-2.10)
BIN	0.00036	-0.00027	0.0019***	0.0044***	0.00046	-0.0044**	-0.0081***	-0.00096
	(0.47)	(-0.39)	(2.66)	(7.56)	(0.22)	(-2.36)	(-4.41)	(-0.62)
BSK	0.23***	0.21***	0.23***	0.12***	-0.52***	-0.29***	-0.43***	-0.10
	(4.37)	(4.42)	(4.72)	(2.94)	(-5.81)	(-3.63)	(-5.37)	(-1.55)
CEOd	0.45***	0.49***	0.37***	0.037	-0.35***	-0.25***	-0.21***	-0.11*
	(13.79)	(16.58)	(12.21)	(1.46)	(-4.21)	(-3.52)	(-3.03)	(-1.94)
FS	-0.52***	-0.53***	-0.57***	-0.41***	-0.54***	-0.46***	-0.56***	-0.37***
	(-33.20)	(-37.48)	(-39.23)	(-37.08)	(-15.17)	(-14.84)	(-18.38)	(-16.45)
TQ	0.16***	0.17***	0.15***	0.071***	0.089**	0.080**	0.065**	-0.071***
	(8.78)	(9.86)	(8.62)	(4.23)	(2.57)	(2.51)	(2.10)	(-2.69)
DP	-4.78***	-5.33***	-5.79***	-1.91***	-1.63	-0.45	-0.79	-0.42
	(-8.07)	(-9.69)	(-10.39)	(-3.75)	(-1.30)	(-0.40)	(-0.72)	(-0.45)
CF	-2.42***	-2.55***	-2.16***	0.60**	-1.68**	-2.66***	-2.82***	0.14
	(-8.49)	(-9.61)	(-8.03)	(2.41)	(-2.36)	(-4.13)	(-4.49)	(0.26)
CE	-0.068	-1.35***	-0.83***	1.07***	-2.28***	-2.29***	-1.30*	0.74
	(-0.28)	(-5.79)	(-3.48)	(4.14)	(-2.89)	(-3.21)	(-1.88)	(1.24)
RD	-11.7***	-9.46***	-10.0***	-7.90***	0.060	6.14**	1.49	-1.36
	(-13.08)	(-12.17)	(-12.98)	(-12.77)	(0.02)	(2.29)	(0.59)	(-0.60)
LV	0.49***	0.66***	0.31***	0.23***	0.31	0.56***	0.55***	-0.39***
	(5.99)	(8.86)	(4.12)	(3.34)	(1.51)	(3.04)	(3.10)	(-2.67)
Constant	182.2***	139.6***	164.4***	212.9***	255.5***	294.6***	265.7***	197.1***
	(22.98)	(19.44)	(22.29)	(32.46)	(11.78)	(15.02)	(13.76)	(11.88)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	37698	37698	37698	37698	8356	8356	8356	8356
Pseudo R^2	0.327	0.310	0.332	0.214	0.273	0.278	0.262	0.143
χ^2-stat.	12044.76***	13535.94***	14373.94***	11158.55***	1971.46***	2514.45***	2410.80***	1629.96***

t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$**;** Robust standard errors are reported. **Source: Authors' own work.**

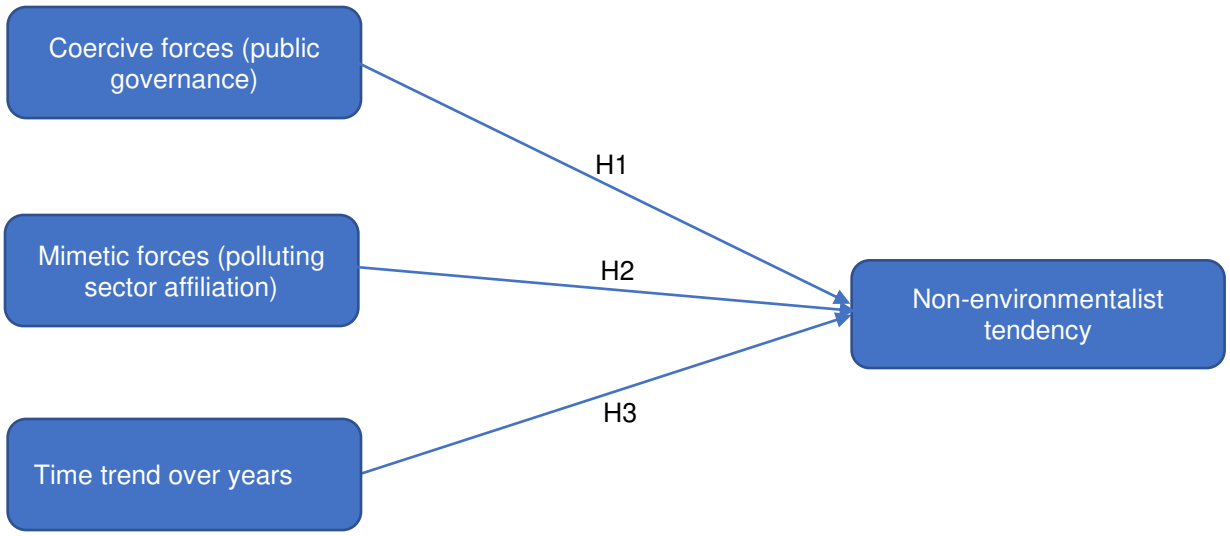

Figure 1. Hypothesized relationships. **Source: Authors' own work**

Appendix

Table A1: Country-level sample distribution

	Country	Unique firms	Percent	Data points	Percent
1	Argentina	56	0.73	136	0.23
2	Australia	382	4.96	3,294	5.57
3	Austria	32	0.42	268	0.45
4	Bahrain	7	0.09	32	0.05
5	Belgium	50	0.65	417	0.70
6	Brazil	105	1.36	787	1.33
7	Canada	301	3.91	2,976	5.03
8	Chile	42	0.55	281	0.47
9	China	462	6.00	1,547	2.61
10	Colombia	23	0.30	133	0.22
11	Cyprus	1	0.01	11	0.02
12	Czech Republic	4	0.05	38	0.06
13	Denmark	46	0.60	451	0.76
14	Egypt	9	0.12	77	0.13
15	Finland	35	0.45	403	0.68
16	France	157	2.04	1,497	2.53
17	Germany	188	2.44	1,410	2.38
18	Greece	26	0.34	269	0.45
19	Hong Kong	259	3.36	2,143	3.62
20	Hungary	5	0.06	44	0.07
21	India	150	1.95	986	1.67
22	Indonesia	43	0.56	344	0.58
23	Ireland; Republic of	13	0.17	120	0.20
24	Israel	14	0.18	147	0.25
25	Italy	99	1.29	752	1.27
26	Japan	441	5.73	5,974	10.10
27	Jordan	1	0.01	11	0.02
28	Kazakhstan	2	0.03	4	0.01
29	Kenya	1	0.01	5	0.01
31	Kuwait	11	0.14	75	0.13
32	Luxembourg	2	0.03	16	0.03
33	Malaysia	62	0.80	529	0.89
34	Mexico	52	0.68	355	0.60
35	Morocco	3	0.04	32	0.05
36	Netherlands	58	0.75	522	0.88
37	New Zealand	54	0.70	362	0.61
38	Nigeria	1	0.01	10	0.02
39	Norway	69	0.90	438	0.74
40	Oman	10	0.13	51	0.09
41	Pakistan	5	0.06	14	0.02
42	Peru	31	0.40	102	0.17
43	Philippines	25	0.32	221	0.37
44	Poland	44	0.57	301	0.51
45	Portugal	16	0.21	144	0.24
46	Qatar	17	0.22	92	0.16
47	Romania	2	0.03	5	0.01
48	Russia	42	0.55	377	0.64
49	Saudi Arabia	36	0.47	133	0.22
50	Singapore	49	0.64	637	1.08
51	Slovenia	1	0.01	2	0.00
52	South Africa	128	1.66	1,095	1.85
30	South Korea	138	1.79	1,092	1.85
53	Spain	74	0.96	667	1.13
54	Sri Lanka	1	0.01	10	0.02
55	Sweden	140	1.82	994	1.68
56	Switzerland	125	1.62	1,028	1.74
57	Taiwan	150	1.95	1,234	2.09
58	Thailand	43	0.56	331	0.56

59	Turkey	58	0.75	298	0.50
60	Uganda	2	0.03	2	0.00
61	United Arab Emirates	19	0.25	74	0.13
62	United Kingdom	473	6.14	4,569	7.72
63	United States	2,805	36.42	18,792	31.76
64	Vietnam	1	0.01	1	0.00
65	Zimbabwe	1	0.01	10	0.02
	Total	*7,702*	*100.00*	*59,172*	*100.00*

Source: Authors' own work

Table A2: Multicollinearity analysis

Variable	VIF
CF	2.21
TQ	2.10
FS	1.94
DP	1.76
LV	1.44
BS	1.36
BGD	1.24
BIN	1.19
SCO	1.19
EXP	1.18
CE	1.15
PIND	1.11
RD	1.11
WGI	1.10
BSL	1.08
CEOd	1.03
Mean VIF	1.39

VIF: Variance Inflation Factor. **Source: Authors' own work**